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# BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES



Application Number: 09/914,966
Filing Date: September 06, 2001
Appellant(s): MACKEY ET AL.

C. Brant Cook
For Appellant

## EXAMINER'S ANSWER

This is in response to the appeal brief filed October 6, 2006, appealing from the Office action mailed February 9, 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the Brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the Brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the Brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the Brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the Brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| US 4,243,480 | Hernandez et al. | 01/1981 |
| US 5,516,815 | Buehler et al. | 05/1996 |

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 33-35 and 37-52 stand rejected under 35 USC 103(a) as being unpatentable over US 4,243,480 issued to Hernandez et al.

Hernandez teaches starch fibers suited for replacing pulp fibers in making paper (abstract). The fibers have diameters in the range of 10-500 microns (col. 7, lines 7-11) and contain 50% by weight or more of starch (claim 1, col. 21, lines 65-67). The starch fiber may include additives such as a plasticizer and a cross-linking agent in amounts of less than 50% by weight of the total solids (col. 9, lines 22-67). Said cross-linking agent may be urea-formaldehyde, glyoxal, or urea-melamine-formaldehyde resins (col. 9, lines 51-58). The starch fibers can be made into a paper product having a basis weight within the range presently claimed (Tables I, II, V, and XI).

Thus, Hernandez teaches the invention of claims 33-35, 37-41, 48, and 52 with the exception of the average fiber diameter less than 10 microns. As noted above, Hernandez teaches a starch fiber diameter of 10-500 microns rather than the presently claimed less than 10

microns. However, it is argued that the claims are obvious over the teachings of Hernandez. Specifically, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215. In the instant case, decreasing the fiber diameter will produce a softer, more absorbent product. Additionally, while the smallest fiber diameter disclosed by Hernandez is 10 microns, this disclosure would have suggested less than 10 microns, such as 9.9 microns based on the reasonable expectation that the suggested value is so close to the disclosed value that the same desirable properties would be expected in either case. See *Titanium Metals Corp. v. Banner,* 227 USPQ 773. Therefore, claims 33-35, 37-41, 48, and 52 are rejected as being obvious over the cited Hernandez reference.

With respect to claims 42-47, Hernandez does not explicitly teach the claimed properties of the fibrous structure (i.e., absorbency, flexibility, and dry and wet tensile strength). However, it is reasonable to presume the claimed properties would be met by the paper product of Hernandez when modified with a fiber diameter less than 10 microns. Support for said presumption is found in the use of like materials (i.e., starch fiber with plasticizer and cross-linking agent or like diameter) and the use of like processes (i.e., forming a paper product having a like basis weight). Like materials cannot have mutually exclusive properties. Therefore, claims 42-47 are rejected also.

With respect to claim 49, Hernandez does not explicitly teach an apparent density of the paper products. However, it would have been obvious to one skilled in the art to produce a fibrous structure according to the Hernandez invention with a fiber diameter of less than 10 microns and having the presently claimed density since it has been held that where the general

conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. One skilled in the art would readily understand suitable apparent densities for successful paper products. Therefore, claim 49 is also rejected.

Claims 50 and 51 are drawn to the fiber of claim 33 wherein said fiber is a melt blown fiber and a spunbond fiber, respectively. Although Hernandez teaches fiber formation via wet spinning, said claims are rejected as being obvious over the reference. [Note appellant describes Hernandez's process as "solvent spinning."] Specifically, the limitations of claims 50 and 51 amount to method limitations in an article claim. As such, said limitations are only given weight to the extent that said limitations produce a structurally different product. It is believed that the claimed melt spun fibers (i.e., melt blown and spunbond fibers) are not materially different than the solvent spun fibers of Hernandez. Note applicant is not claiming a melt blown or spunbond nonwoven or fibrous structure but rather applicant is merely claiming an individual fiber. There is nothing on record establishing any chemical or structural differences between a fiber that is melt spun versus one that is solvent spun. Therefore, claims 50 and 51 are rejected as being obvious over the cited prior art.

B. Claim 36 stands rejected under 35 USC 103(a) as being unpatentable over the cited Hernandez reference in view of US 5,516,815 issued to Buehler et al.

Hernandez teaches the addition of a plasticizer to the starch fiber, but fails to explicitly teach suitable plasticizers. As such, one must look to the prior art to select a suitable plasticizer. For example, Buehler teaches a starch fiber having a plasticizer such as sorbitol, mannitol, ethylene glycol, and polyethylene glycol. Thus, it would have been obvious to one skilled in the

art to employ the claimed plasticizers since Hernandez's lack of a teaching to suitable plasticizers must lead one to other prior art, such as Buehler. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416. Therefore, claim 36 is rejected as being obvious over the cited prior art.

**(10) Response to Argument**

Appellant traverses the rejection of the claims as being obvious over Hernandez by asserting that the reference "fails to teach each and every element of Claim 33" (Brief, page 3, 3rd paragraph). The examiner agrees. As such, the rejection over Hernandez is not a 102 anticipation rejection, but rather a 103 obviousness rejection. Specifically, while Hernandez fails to explicitly teach a fiber diameter of less than 10 microns, the reference does suggest to one of ordinary skill in the art to employ a fiber diameter of less than 10 microns. As noted above, a disclosure of 10 microns suggests less than 10 microns, such as 9.99 microns based on the reasonable expectation that the suggested value is so close to the disclosed value that the same desirable properties would be expected in either case. See *Titanium Metals Corp. v. Banner,* 227 USPQ 773.

Appellant also argues the above rejection by asserting that one of ordinary skill in the art could not produce fibers having an average diameter of less than 10 microns (Brief, paragraph spanning pages 3-4). In particular, appellant asserts that the wet spinning process disclosed by Hernandez could not produce such fine fiber diameters without some form of attenuation or drawing of said fiber (Brief, paragraph spanning pages 3-4). Note the working example of

Hernandez only teaches a fiber diameter of 65 microns. Since Hernandez is silent with respect to said attenuation or drawing processes, appellant believes the reference fails to enable one of ordinary skill in the art to make fibers of less than 10 microns (Brief, paragraph spanning pages 3-4). Appellant relies upon the Mackey Declaration under 37 CFR 1.132, originally filed December 7, 2005, section 3, as support for this argument.

The examiner respectfully disagrees. First, the reference is not limited to its working examples. "The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain." *In re Heck*, 216 USPQ 1038, (quoting *In re Lemelson*, 158 USPQ 275). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 169 USPQ 423. Note the reference *explicitly* teaches diameters ranging from 10 to 500 microns (col. 3, lines 58-64 and claim 1).

Secondly, Hernandez lack of a teaching to attenuation or drawing of the fibers is not sufficient support for establishing the reference is non-enabled for diameters of 10 microns. A reference contains an "enabling disclosure" if the public was in possession of the claimed invention before the date of invention. "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." *In re Donohue*, 226 USPQ 619. Appellant has not provided evidence showing that a process for making fibers as disclosed by Hernandez was not known at the time of the invention. In fact, appellant asserts the contrary in the Mackey Declaration, section 3, 4$^{th}$ paragraph: "It is well known that the diameter of a spun fiber is

essentially equivalent to the diameter of the extrusion die through which the spun fiber is formed unless the spun fiber is subjected to extremely high attenuation forces." Hence, appellant's own declaration establishes that it is well known in the art to attenuate fibers in order to obtain finer diameters. Thus, appellant's argument that the Hernandez reference is not enabled for the disclosed teaching of 10 microns is found unpersuasive.

Appellant also traverses the present rejection by asserting the starch fibers of the present invention are made by a process (i.e., melt spinning) different from that disclosed by Hernandez (i.e., wet spinning) (Brief, page 4, 1st paragraph). In response, appellant is not claiming a process of making a product, and with the exception of claims 50 and 51, does not even recite any process limitations (i.e., product-by-process claims). Hence, appellant's argument is found unpersuasive with respect to claims 33-49 and 52.

With respect to claims 50 and 51, as noted above, the method limitations are not given patentable weight at this time since there is nothing on record establishing that said methods produce structurally or chemically different fibers than the prior art fibers produced by a different method. Note appellant's mere allegations that "it is clear that fibers produced by Hernandez's wet-spinning process are different than those produced by Appellant's dry, melt spinning process" or "dry, spunbond process" are insufficient to establish the processes produce different products (Brief, page 4, 3rd paragraph and page 5, 1st paragraph). Therefore, appellant's argument is also found unpersuasive with respect to claims 50 and 51.

Regarding claim 52, appellant traverses the rejection by asserting that Hernandez "fails to teach each and every element of Claim 52" (Brief, page 5, 2nd paragraph). Again, the rejection over Hernandez is not a 102 anticipation rejection, but rather a 103 obviousness rejection.

Specifically, while Hernandez fails to explicitly teach a fibrous paper product comprising a fiber diameter of less than 10 microns, the reference does suggest to one of ordinary skill in the art to employ a fiber diameter of less than 10 microns. To reiterate, a disclosure of 10 microns suggests less than 10 microns, such as 9.9 microns based on the reasonable expectation that the suggested value is so close to the disclosed value that the same desirable properties would be expected in either case. See *Titanium Metals Corp. v. Banner,* 227 USPQ 773.

Regarding the rejection of claim 36 over Hernandez in view of Buehler, appellant merely argues that Buehler fails to overcome the deficiencies of Hernandez, wherein the reference fails to teach a fiber diameter of less than 10 microns (Brief, paragraph spanning pages 5-6). As explained above, the Hernandez reference is not deficient in suggesting to one of ordinary skill in the art a starch fiber having an average fiber diameter of less than 10 microns. Therefore, appellant's argument is found unpersuasive and the rejection of claim 36 over Hernandez in view of Buehler is maintained.

To summarize, the rejection of claims 33-52 stands over the cited Hernandez reference since said reference explicitly teaches a starch fiber diameter of 10 microns, which readily suggests to one of ordinary skill in the art a starch fiber diameter of less than 10 microns (e.g., 9.9 microns). Additionally, the Hernandez reference is presumed enabled for a starch fiber having a diameter of 10 microns since there is no evidence on record establishing otherwise. Also, appellant has not established that the method limitations of claims 50 and 51 produce structurally or chemically different fibers than those made by the process of the prior art. Furthermore, it is noted that appellant has not presented any evidence of unexpected results obtained from the claimed fiber diameter. It is well settled that where patentability is predicated

upon a change in a condition of a prior art composition, such as change in size, concentration or the like, the burden is on the applicant to establish with objective evidence that the change is critical, i.e., it leads to a new, unexpected result. *In re Woodruff*, 16 USPQ2d 1934; *In re Aller*, 105 USPQ 233. In the present case, appellant has not attached any criticality to the claimed fiber diameter of less than 10 microns and the disclosed preference for an average fiber diameter "of less than 50 microns, preferably less than 25 microns, more preferably less than 15 microns, even more preferably less than 10 microns, and most preferably less than 5 microns" would seem to allay any suggestion of criticality (see page 24 of specification, lines 10-14).

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Cheryl Juska

Conferees:

Terrel Morris
Carol Chaney